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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,121	06/25/2001	Takashi Endo	35.C15484	7326

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EXAMINER
SUNG, CHRISTINE

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/887,121	ENDO, TAKASHI	
	Examiner	Art Unit	
	Christine Sung	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-12 and 14-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19 and 20* is/are allowed.

6)☒ Claim(s) *1-8,10-12 and 14-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *28 July 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Response to Amendment

1. The amendment filed on 7/28/2003 has been entered.

Drawings

2. The drawing amendment filed on 7/28/2003 has been entered.

Response to Arguments

3. Applicant's arguments filed 7/28/2003 have been fully considered but they are not persuasive and are moot in view of the new rejections applied.

Regarding applicants argument that the elastic support means is not located opposite the radiation incident side, a new rejection based upon the amendments to the claims, has been added (see below).

While applicant's argument that Crowell does not teach or suggest the specific positioning of the cushioning material between the detection panel and the outer enclosure is true, Frederick discloses that a cushioning material is used to protect the detector elements from shock or damage inside a casing. Further, Frederick discloses in the abstract that the cushioning material is used to protect the detector elements from shock and is positioned on one end of the detector and on the other end, a spring system is used to further reduce any possible shock to the detector elements. Crowell states that the object of his invention is to provide a robust imaging system that can function under panel stresses that occur because of rough handling, twisting, the weight of the patient positioned over the panel for examination, dropping, etc. Therefore, although Crowell does not specify the positioning of a cushioning material between the radiation detector panel and the outer enclosure, the purpose of Crowell's invention is to eliminate undue

stress upon the radiation detector caused by jostling or rough handling that could result in damage to the detector elements.

The applicant further argues that there is no motivation for combining Frederick and Crowell, however, as mentioned above the examiner believes that a motivation exists as the invention disclosed by Crowell necessitates that the detector elements be protected from shock in order to produce accurate measurements. Further Frederick discloses an apparatus that uses a cushioning material to reduce the shock absorbed by the detector elements. Therefore, one of ordinary skill in the art is motivated to use the cushioning material disclosed by Frederick as a means to protect the detector elements disclosed by Crowell.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-2, 4-8, 10-12, 14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowell (US Patent 5,804,832) in view of Frederick (US Patent 5,796,109).

Regarding claims 1 and 12, Crowell discloses a radiation imaging system comprising: a radiation image detection panel (Figure 5, element 22) having a means for converting radiation into electric signals; an outer enclosure which holds the radiation image detection panel (figure 5, elements 36 and 38) wherein the radiation imaging system further comprises an elastic support means (Figure 5, element 40) and the radiation image detection panel is elastically supported by the elastic support means toward the outer enclosure (Figure 5). Further, Crowell discloses a pair

of sealed panels (elements 50 and 52) that enclose the radiation detection panel, and are elastically supported. Although, Crowell does not specifically disclose positioning a cushioning material between the radiation image detection panel and the outer enclosure to elastically protect the panel. Frederick discloses a detector apparatus that is protected from shock by a cushioning elastic material on one end and a spring system on another (See abstract). Frederick demonstrates that detection elements that are prone to excessive shock or handling can reduce the risk of detector failure or damage by the inclusion of various elastomeric cushioning materials and a spring system. The cushioning of detection elements is prior art, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the cushioning material and/or springs as disclosed by Frederick with the invention as claimed Crowell in order to reduce shock or damage to the detection elements when used.

Regarding claims 2 and 14, Crowell further discloses that the radiation imaging system includes an electric circuit board (Figure 5, element 48).

Regarding claims 4 and 16, Crowell further discloses a support plate (Figure 5, element 44) that supports the radiation image detection panel and the electric circuit board being attached to the support plate (Figure 5) so that the circuit board is integrally attached to the radiation image detection panel.

Regarding claims 5 and 17, Crowell further discloses that the elastic support means comprises a rubbery or similar flexible material (Column 5, lines 18-19).

Regarding claim 6-8, Crowell discloses the limitations set forth in claim 1, but does not specify that the elastic support means comprises a spring. Frederick discloses using a spring

(element 36) to protect and absorb shock in a radiation detection system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the springs disclosed by Frederick with the invention disclosed by Crowell to be able to tune the system to a desired load for a desired application. Further because the types of springs disclosed in the claims are well known in the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used any spring that attained the necessary properties because it is only a matter of design choice.

Regarding claim 10, Frederick discloses that the scintillation or detector element is encased in a potting material (see abstract) or cushioning material. It would have been obvious to one having ordinary skill in the art to have used such a potting or cushioning material to protect the detector element from the outer enclosure, which will further keep the integrity of the detector elements intact. Regarding claim 10, although Frederick does not disclose that the material specifically comprise a radiation transmissive member, it would have been obvious to use the potting material stated by Frederick to cushion the detection panel and the outer enclosure. Further as a matter of design choice, it would have been obvious to use a radiation transmissive material in order to not restrict the ability of the radiation to reach the detector.

Regarding claim 11, Crowell discloses elastic support means, as disclosed above and further the elastic support means has a restricted range of motion. Although Crowell does not explicitly describe a stopper, it is inherent that no matter how much force is exerted upon the elastic support means, it will always restrict the motion range of the support plate and in the downward direction.

Regarding claim 18, Crowell discloses the limitations set forth in claim 12. Further he discloses that there is a removable sliding EL (electro luminescent) (column 5, lines 39-49) inner casing, that when removed creates an opening on the side where the radiation is incident. It would have been obvious to one having ordinary skill in the art to remove the EL when it isn't in use, i.e. during detection, and it is obvious that the EL is not necessary for detection to take place. Further, the use purpose of the window is to allow all radiation to enter and hit the detector, and it is obvious that the EL panels must not inhibit radiation from entering the detector.

6. Claims 3 and 15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowell (US Patent 5,804,832) in view of Frederick (US Patent 5,796,109) and further in view of Lys et al. (US Patent 6,211,626).

Crowell discloses all the limitations set forth in claims 1 and 12 but fails to specifically disclose the use of a flexible circuit board. It is well known in the art to use flexible circuit boards in situations where there is a stress placed on the circuit board, as disclosed in Lys et al. Lys discloses that LEDs can be mounted to a flexible circuit board (column 75, line 63- column 76, line 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a flexible circuit board as disclosed by Lys et al. to reduce the stress placed on the circuit board disclosed by Crowell, which reduces the possibility of failure in the circuitry.

Allowable Subject Matter

7. Claims 19-20 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claims 19-20 disclose the use of a flange as a part of the inner case. None of the prior art of record discloses using a flange for the protection of the detector panel.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 703-305-0382. The examiner can normally be reached on Monday- Friday 7-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Christine Sung
Examiner
Art Unit 2878

CS

DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800